

Water Use Challenges in Santa Clara Valley

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Presentation Outline

About the Santa Clara Valley Water District

Where your water comes from

Water supply – Challenges

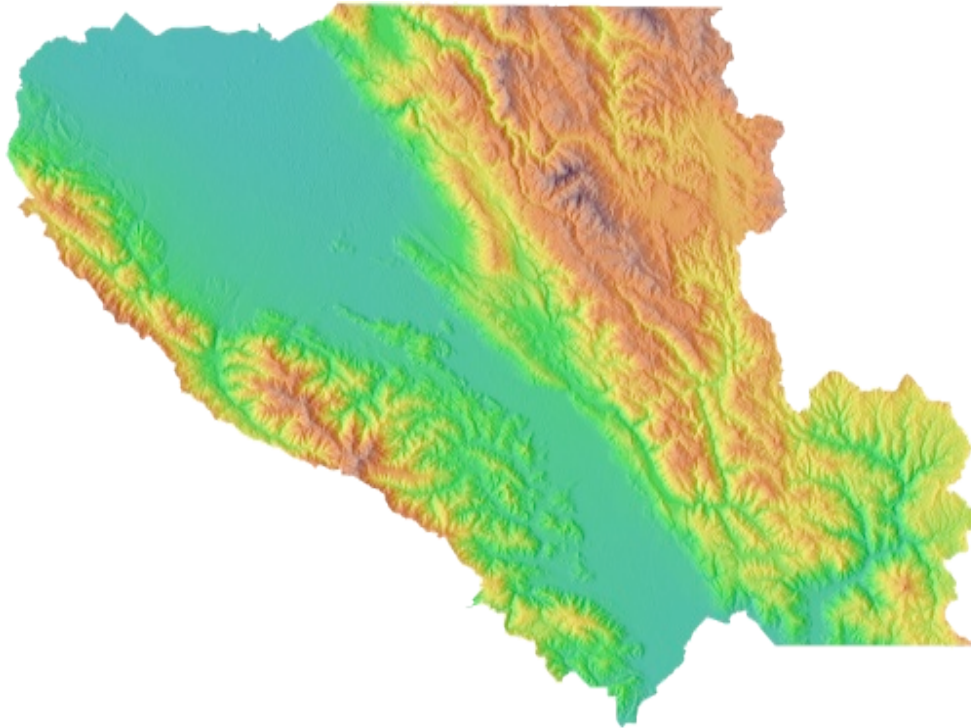
Water supply – Solutions

- Water use efficiency programs
- The Water – Energy Nexus

Water – our mission for 75+ years

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- **Clean, safe, reliable water**
 - **Healthy creek ecosystem**
 - **Protection from floods**
 - **Watershed Stewardship**
 - **Water Supply Management**

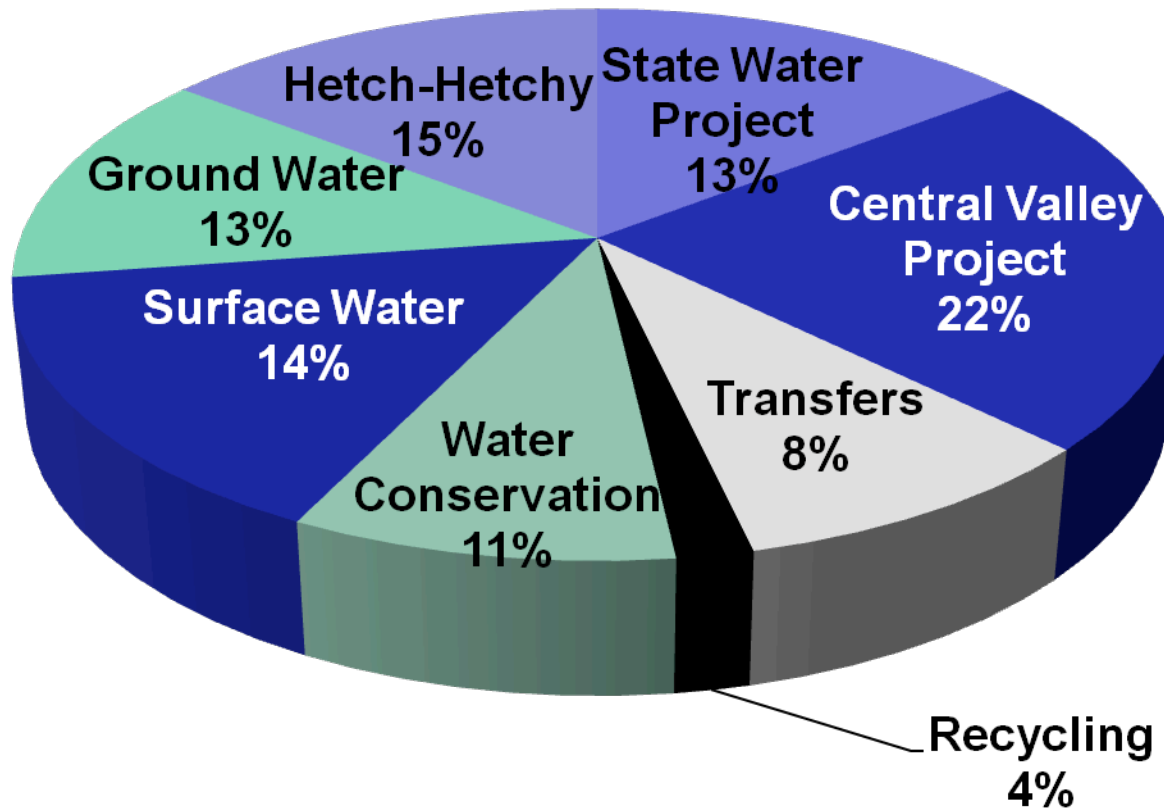
The Santa Clara Valley Water District manages the water resources for the entire county



- **1,300 square miles**
- **800 miles of creeks
and rivers**
- **Population of 1.8 million**
- **200,000 commuters**

Variety of water supply sources for Santa Clara County:

Percent Water Supply by Source



Santa Clara County

💧 A Semi-arid Region

- Santa Clara County experiences an annual rainfall of only 14 inches.



💧 Rapid Population Growth

- County: approximately 1,800,000



💧 Water Use

- Total Water Use for county (2008) 400,000 Acre-Feet
(roughly 130 billion gallons)

Current Water Supply Outlook

Local Rainfall

- Oct. 1 through Dec. 31, downtown SJ was 2.7 inches, 57 percent of historic average for this period.
- Too early in season to predict for 2009

Statewide Conditions

- Snow survey of the 2008/2009 winter season indicates snow water content is 76 percent of normal state-wide.
- This is a moderately dry start to the snow season after two consecutive dry years.

Current Water Supply Outlook

Hydrological Drought

- 💧 A 28-inch deficit in precipitation in Northern and Central Sierras has left the state's reservoirs at about half the level they should be for this time of year.

Regulatory Drought

- 💧 Endangered species (Delta smelt) in Delta
- 💧 SCVWD allocation from Delta may be reduced 15-30%

Call for Voluntary Water Conservation

- 💧 The Water District continues to call for 10 percent voluntary conservation.
- 💧 Countywide water use was down by 7 percent, by October 2008.
- 💧 In the future, if drought conditions persist, the Water District may have to call for mandatory water restrictions.



Water supply – Solutions

- 💧 **Water Use Efficiency Programs**
 - 💧 **The Water – Energy Nexus**

The Santa Clara Valley Water District's Water Use Efficiency Programs

Water Conservation



Water Recycling



Desalination



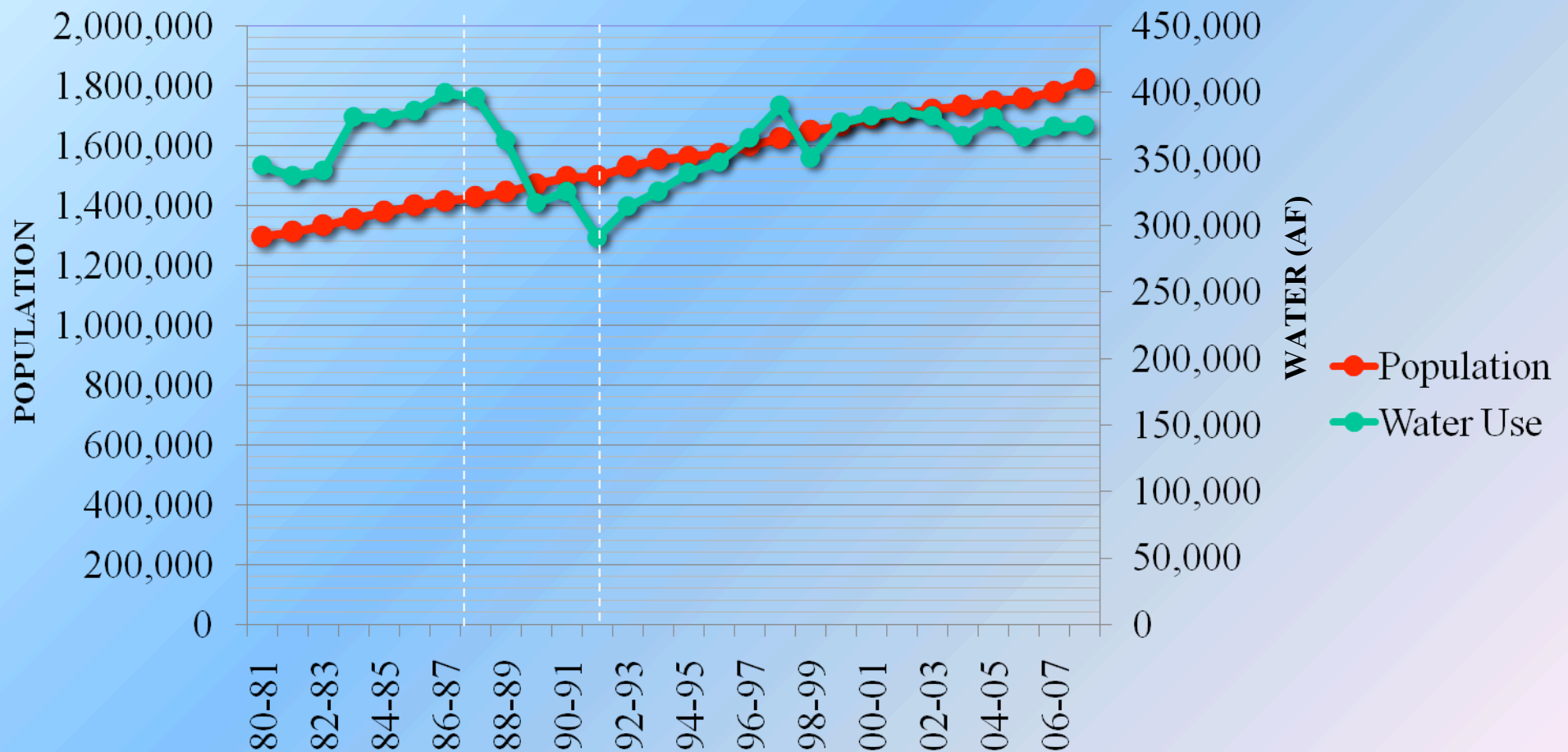
SCVWD Water Conservation Programs

- 💧 **Residential, Commercial and Agricultural Programs**
- 💧 **Research/Studies**
- 💧 **Education/Outreach**

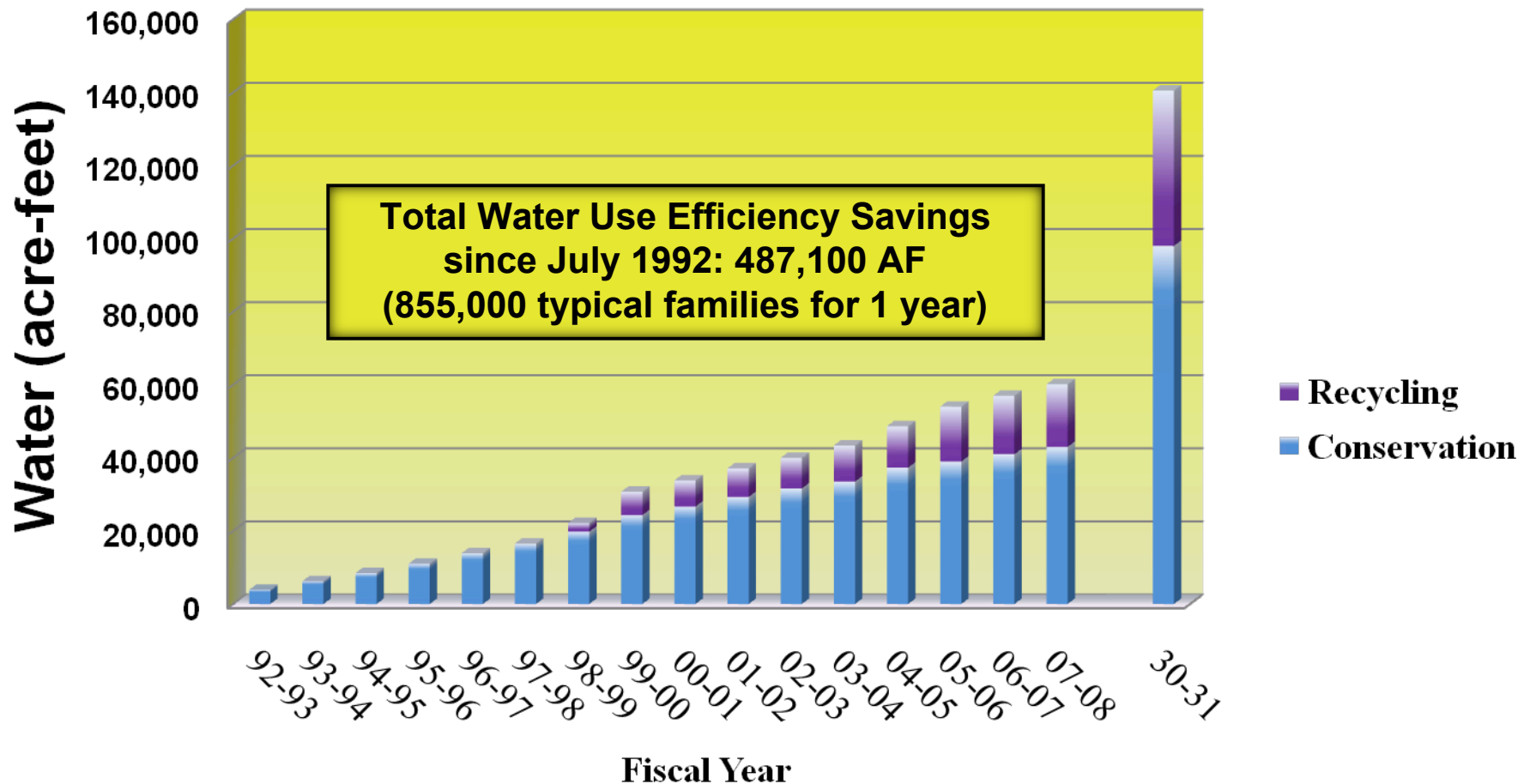


Population and Water Use

Due in part to water use efficiency efforts, water use in Santa Clara County has not increased significantly despite the increase in population.



Water Conservation and Water Recycling Savings



Benefits of Water Use Efficiency

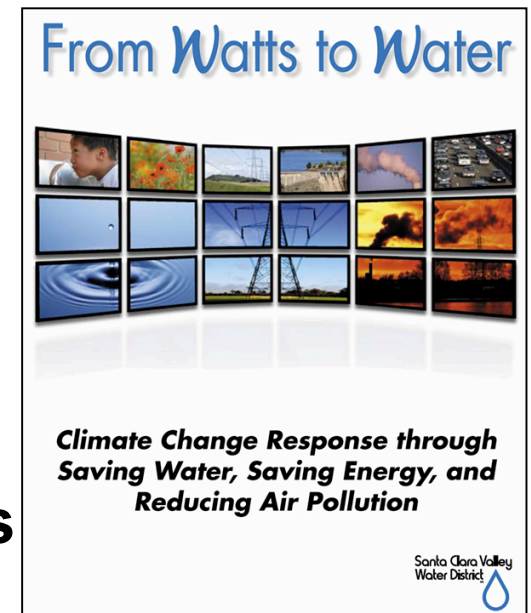
💧 **Water supply management benefits**

- flexible and diverse water supply portfolio
- reliable source of water:
 - 60,100 of potable water saved during FY 06-07
 - 487,100 AF of potable water saved from FY 92-93 through FY 06-07

💧 **Environmental Benefits**

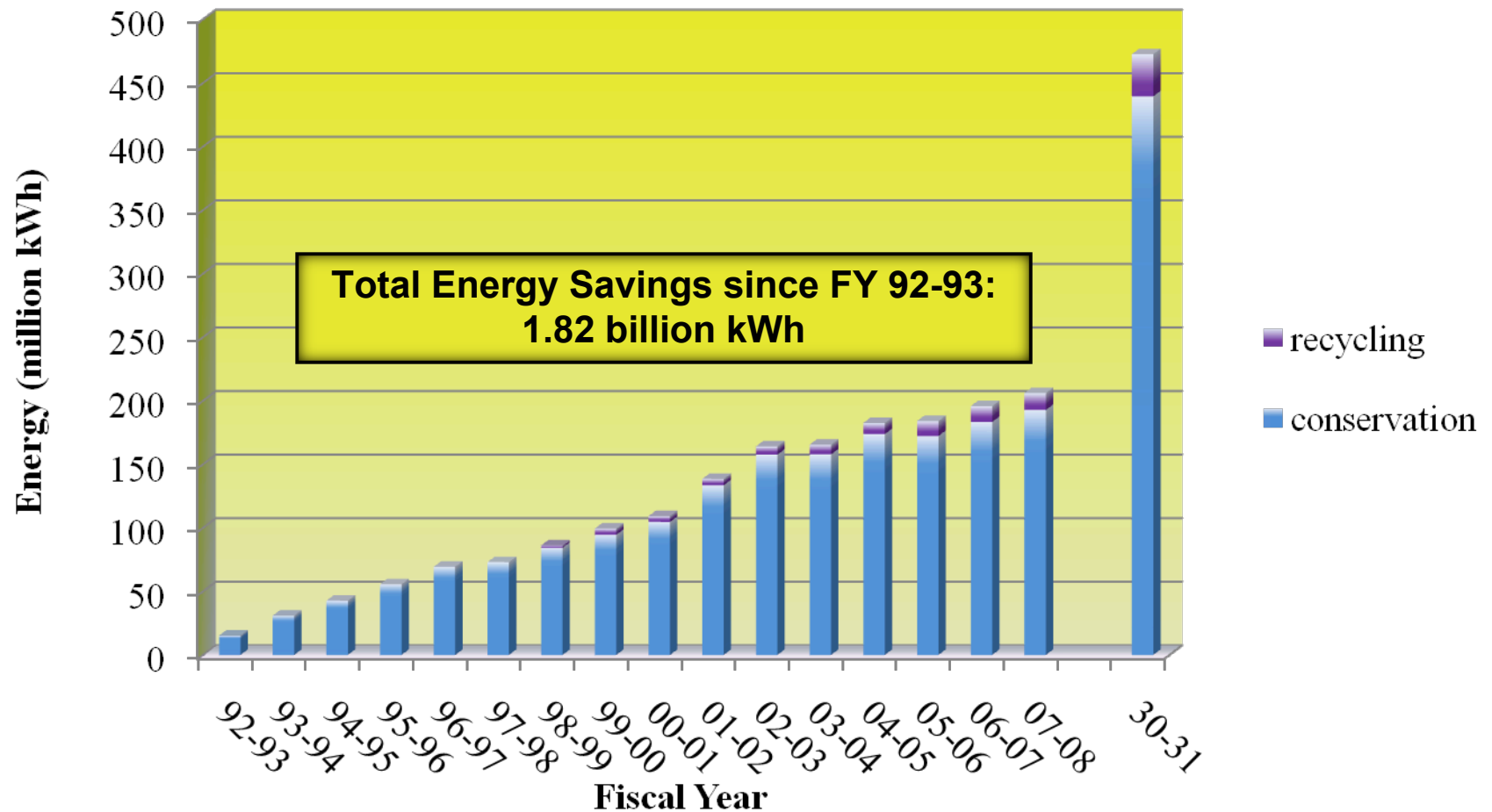
- improved ecosystem function
- restored wildlife habitat
- aesthetic and recreational benefits
- reduced surface water runoff

💧 **Energy savings and air quality benefits**



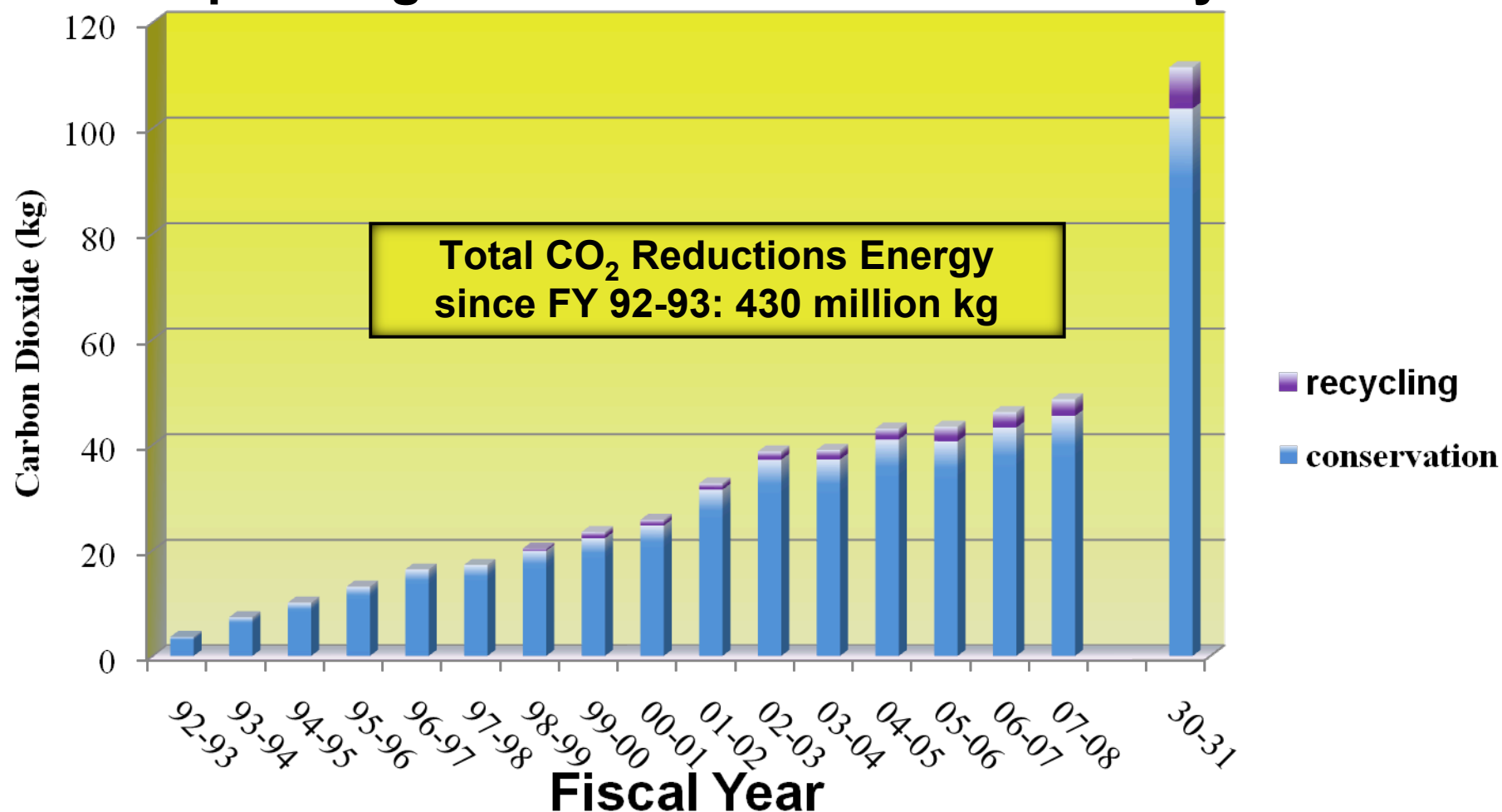
Energy Savings from Water Use Efficiency

Total energy savings equivalent to electricity required for 265,000 households for one year

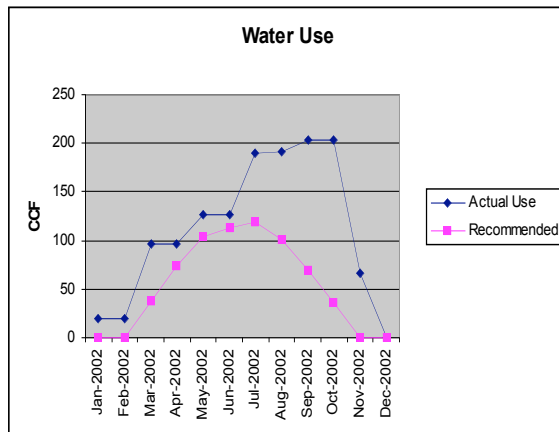
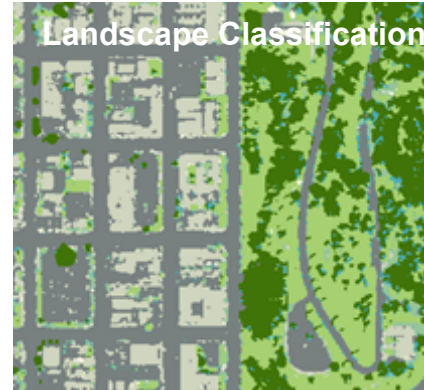


CO₂ Reductions from Water Use Efficiency

Total CO₂ reductions equivalent to removing 92,500 passenger cars from the roads for one year



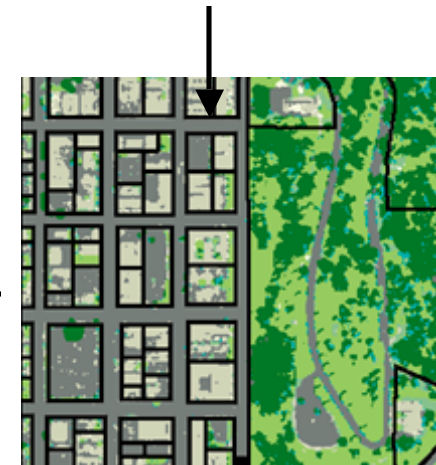
Landscape Area Measurements and Water Use Budgets (LAMS)



Weather Data

Parcel	Turf	Tree	Shrub	Non- Irrigated
1279-032	5,642	2,895	1,037	10,302
1279-033	9,275	2,382	491	53,493
1280-017	23,275	7,892	4,321	123,723
1280-018	547	320	-	2,542
1280-042	10,384	4,657	3,937	5,642

Customer Water
Use Data



Water Conservation Challenges

- 💧 **Water conservation awareness**
 - 💧 New technologies
 - 💧 Education
- 💧 **Costs vs. benefits**
- 💧 **Water pricing**
- 💧 **Coordination of multiple political entities**
- 💧 **Data: remote sensing data for monitoring, modeling, and estimation (e.g. GEOS for ET₀ estimates)**

District's Recycled Water & Desalination Program

Water Quality

- ◆ Recycled water monitoring & research (endocrine disrupting compounds & pharmaceutical & personal care products)

Partnerships

- ◆ South County Regional Wastewater Authority Partnership Projects
- ◆ South Bay Water Recycling, Recycled Water Reimbursement & Long-Term Agreement
- ◆ Sunnyvale Recycled Water Reimbursement and potential Long-Term Agreement
- ◆ Palo Alto / Mt View technical assistance

Treatment Technologies

- ◆ Membrane Pilots (Recycled Water & Desalination)

Design

- ◆ Advanced Treatment Facility
- ◆ Streamflow Augmentation



Recycled Water Uses

Agriculture



Indoor Dual Plumbing



Peaker Plant



Golf Course



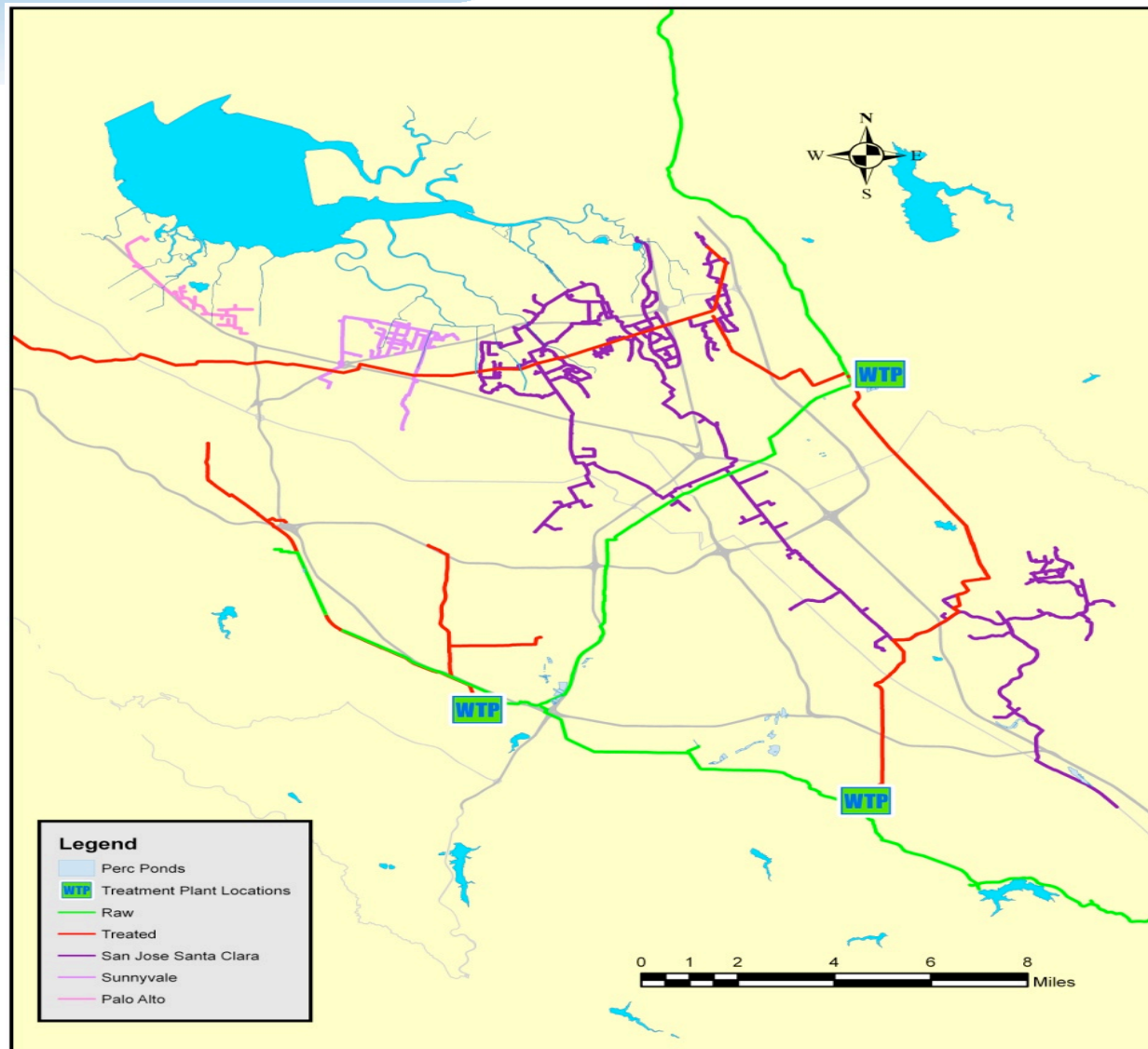
Cooling



Decorative Fountain



Recycled Water Map



Advanced Recycled Water Treatment Facility (AWT) Project Development

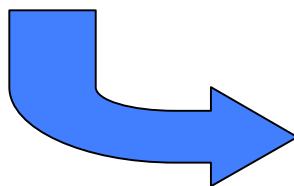


Using Technology

Advanced Treatment Technologies for improving recycled water quality



**Tertiary
Treatment**



**Micro-
Filtration**



**Reverse
Osmosis**

Why should we implement AWT now?

- 1. Water quality improvements needed to expand non-potable recycled water uses**
- 2. Streamflow Augmentation with recycled water requires better quality water**
- 3. Groundwater Recharge Reuse projects require 10-15 years lead time (e.g. OCWD, Singapore's NEWater Project, Australia's projects).**

Advanced Recycled Water Treatment Facility (AWT)

- **Improve recycled water quality & reduce emerging contaminant, reduce salinity from approximately 740 ppm to 500 ppm**
- **Increase recycled water uses**
- **Protect groundwater basins**
- **Avoid City's Filter Expansion**
 - The larger AWT will increase treatment (filter) capacity.
 - The larger AWT will improve overall recycled & wastewater treatment reliability.

*10mgd MF, 8mgd RO, 10mgd UV

Water Recycling and Desalination Challenges

- 💧 **Costs**
- 💧 **Public Acceptance**
- 💧 **Energy**
- 💧 **Coordination of multiple political entities**



Questions?

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